

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listing of claims, in the Application.

Listing of claims:

1. (Currently amended) An algorithm to improve efficiency of editing source code, comprising
 - (1) recognizing that a source code has been edited;
 - (2) identifying a program construct having the edited source code;
 - (3) constructing a construct list of at least one other construct having similar derived and/or related code to the program construct;
 - (4) comparing ~~determining the similarity between~~ the at least one other construct ~~and~~ with the program construct having the edited source code; and
 - (5) if, in response to comparing the at least one other construct with the program construct, a commonality between the at least one other construct and the program construct is found to be equal to or beyond a threshold of similarity, then notifying ~~the owners of a user~~ responsible for the at least one other construct that the source code of the program construct has been edited ~~determined to be similar~~.
2. (Currently amended) The efficiency algorithm of claim 1, wherein ~~the step~~ of identifying the program construct further comprises parsing ~~the~~ tokens of the edited source code.

CA920020065US1

3. (Currently amended) The efficiency algorithm of claim 1, wherein ~~the step of constructing a construct list further comprises determining that the at least one other construct is of~~ at least a reasonable threshold size for placement in the construct list.
4. (Currently amended) The efficiency algorithm of claim 3, further comprising ~~the step of:~~ parsing a sequence of tokens from each of a plurality of constructs of the at least threshold ~~a reasonable~~ size.
5. (Currently amended) The efficiency algorithm of claim 4, wherein ~~the step of determining the similarity~~ comparing the at least one other construct with the program construct further comprises comparing the parsed tokens of the edited source code with ~~the~~ parsed tokens of each of a plurality of constructs in the construct list.
6. (Currently amended) The efficiency algorithm of claim 5, wherein ~~the step of comparing the parsed tokens further comprises weighting the compared tokens so that~~ to establish a degree of similarity ~~can be established~~.
7. (Currently amended) The efficiency algorithm of claim 6, further comprising ~~the step of~~ summing the weights of the compared tokens to determine if the sum is equal to or beyond the threshold of similarity.
8. (Original) The efficiency algorithm of claim 1, further comprising storing the construct list.
9. (Original) The efficiency algorithm of claim 1, wherein the efficiency algorithm is a machine-implemented process in an integrated development environment.

CA920020065US1

10. (Currently amended) An efficiency algorithm to improve efficiency of editing source code, comprising

- (1) recognizing that a source code has been edited;
- (2) identifying a program construct having the edited source code and parsing ~~the~~ tokens of the edited source code;
- (3) constructing a construct list of at least one other construct of at least a minimal threshold ~~reasonable~~ size having ~~similar and/or~~ related code by parsing a sequence of tokens from each of a plurality of constructs of the at least minimal threshold ~~a reasonable~~ size;
- (4) ~~determining the similarity between the at least one other construct and the program construct having the edited source code by comparing the parsed tokens of the edited source code with the parsed tokens of each of a~~ the plurality of constructs in the construct list, and weighting the compared tokens;
- (5) summing the weights of the compared tokens to determine if the sum is equal to or beyond ~~the a~~ threshold of similarity, and if so, then determining if ~~an owner of~~ a user responsible for the at least one other construct ~~determined to be similar~~ is to be notified; and
- (6) storing the construct list.

11. (Currently amended) A method of ~~tracing~~ determining if two or more constructs in a repository of source code in an integrated development

CA920020065US1

environment are related to each other and/or derived, said method comprising the steps of:

- (1) identifying a first construct;
- (2) parsing the first N tokens of the first construct, N being a positive integer;
- (3) identifying a plurality of other constructs in the repository;
- (4) ~~disregarding those of the plurality of constructs in the repository that are too small;~~
- (5) ~~identifying those of the plurality of constructs in the repository that are too large;~~
- (6) ~~finding subconstructs in the plurality of constructs that too large;~~
- (7) ~~identifying those constructs in the repository and those subconstructs that are of a reasonable size;~~

parsing M tokens of each one of the other constructs, where $M = N$;
- (8) comparing N the M tokens of ~~the reasonably sized~~ each one of the other constructs with the N tokens of the first construct;
- (9) determining a weight for each one of the N and M tokens token based on name, type, and/or representation;
- (10) summing the weights of ~~each of the N and M~~ compared tokens;

- (11) determining whether that the sum of the weights of the compared ~~token~~ of the M tokens meets or exceeds a threshold of similarity, the threshold of similarity being based on a percentage of the sum of the weights of the M tokens to the sum of the weights of the N tokens; and
- (12) ~~determining that the reasonably-sized construct having the sum of the weights that~~ identifying each construct whose sum of the weights of the M tokens meets or exceeds the threshold of similarity is as being related to the first construct.
12. (Currently amended) The method of claim 11, wherein the step of identifying the first construct further comprises the step of identifying whether a ~~that~~ source code within which resides the first construct has been edited.
13. (Currently amended) The method of claim 11, further comprising storing a pointer to ~~the reasonably-sized~~ each construct identified as being related to the first construct ~~having the sum of the weights that meets or exceeds the threshold of similarity~~ in a construct list of related constructs construct.
14. (Currently amended) The method of claim 13, further comprising the step of identifying users responsible for allocating ownership of a plurality of owners, each of the plurality of owners associated with each of the constructs in the construct list.
15. (Currently amended) The method of claim 14, further comprising the step of offering notification to ~~the plurality of owners~~ each user responsible for that each one of the constructs in the construct list has been changed.

16. (Currently amended) An integrated development environment, comprising:

- (1) a repository of source code ~~comprising~~ into which programs in the integrated development environment are stored;
- (2) a constructor to determine, when executed by a processor, whether that within an edited program, a construct in an edited program has been edited;
- (3) a construct list within the repository, ~~the construct list having into which all constructs~~ any constructs in the repository of at least N tokens and smaller than P tokens that are similar derived and/or related to the edited construct are listed;
- (4) a parser to parse the edited construct and the similar derived and/or related constructs, when executed by a processor;
- (5) a matchmaker ~~that weighs the similarities to determine, when executed by a processor, all the constructs that are derived and/or related to the edited construct and to enter all constructs determined to be derived and/or related to the edited construct between the edited construct and the similar and/or related constructs and determines a degree of matching between the similar and/or related constructs in the construct list based on weight assigned to each of the tokens; and~~
- (6) an announcer to ~~announce to~~ notify, when executed by a processor, any of a plurality of programmers accessing the integrated development environment that the edited construct has

been edited and the constructs that are derived and/or related to the edited construct that certain other constructs in the construct list have a degree of matching equal to or exceeding a threshold of the edited construct.

17. (Currently amended) The integrated development environment of claim 16, further comprising~~[[.]] the ability to list listing~~ within the construct list all source code derived from the edited construct and/or any of the other constructs in the construct lists ~~that have a degree of matching equal to or exceeding a threshold of~~ derived and/or related to the edited construct.
18. (Currently amended) An integrated development environment, comprising:
- (1) means, when executed by a processor, to create a construct list, the construct list having pointers to constructs ~~within in a~~ source code being developed within the integrated development environment and related to and/or derived from other constructs in the construct list;
 - (2) means, when executed by a processor, to edit a construct in the construct list;
 - (3) means, when executed by a processor, to determine ~~the effect of the change of whether~~ the edited construct has an effect on the other constructs in the construct list;
 - (4) means, when executed by a processor, to notify users responsible for owners of the other constructs in the construct list that ~~the change may have an effect on~~ the other constructs in the construct

list are affected by the edited construct if it is determined that the edited construct has an effect on the other constructs.

19. (Currently amended) The integrated development environment of claim 18, further comprising:

(+) means, when executed by a processor, to add a new construct to the construct list if the new construct is derived from and/or related to one of the constructs in the construct list.

20. (Currently amended) An article of manufacture, comprising a data storage medium tangibly embodying a program of machine readable instructions executable by an electronic processing apparatus to perform method steps for operating an electronic processing apparatus, said method steps comprising the steps of:

(+) determining that a source code has been edited in an environment of computer program development;

(2) determining if the edited source code is within a construct of a size of a particular range ~~larger than M tokens and smaller than N tokens;~~

(3) parsing the construct having the edited source code if the edited source is within a construct of the size of the particular range;

(4) finding and parsing other constructs in the environment having a size within the particular range ~~larger than M tokens and smaller than N tokens;~~

- (5) creating a construct list of other constructs in the environment having a size within the particular range larger than M tokens and smaller than N tokens;
 - (6) comparing the tokens between of the construct having the edited source code ~~and the~~ with tokens of the other constructs in the construct list; and
 - (7) determining that the construct having the edited source code is related similar to another any one of the constructs in the construct list if the tokens of any one of the constructs in the construct list equal the tokens of the construct having the edited source code.
21. (Original) The article of manufacture of claim 20, further comprising weighting the compared tokens based on value, type, and/or representation.
22. (Currently amended) The article of manufacture of claim 20[,,] wherein said method steps further comprises ~~comprising~~ the step of notifying the ~~owner a user responsible for of the another construct~~ any one of the constructs in the construct list that is determined to be related to the construct having the edited source code that the source code of the construct has been edited similar to the edited construct of the similarity ~~and of the changed source code in the edited construct.~~
23. (Original) The article of manufacture of claim 20, further comprising at least one construct list of related and/or derived constructs within the integrated development environment.